

PRIMAVERA

- PRocess-based climate sIMulation: AdVances in high resolution modelling and European climate Risk Assessment
- Proposal for Horizon 2020 EU funding
- Develop a new generation of well-evaluated high-resolution global climate models, capable of simulating and predicting regional climate with unprecedented fidelity
 - More consistent, controlled comparison of different models configured in similar ways at different resolutions
 - Develop metrics and tools for process-based assessment
- Centres involved:
 - Met Office, Univ. of Reading, EC-Earth (KNMI, SMHI, IC3), MPI, CMCC (Italy), AWI (Germany), Univ. of Oxford, ECMWF, UCL (Belgium), Stockholm Univ., NOC-Southampton, ISAC-CNR (Italy)
- If funded, start ~mid-2015

Models involved

Institution	MO NCAS	KNMI IC3 SMHI CNR	CERFACS	MPI	AWI	CMCC	ECMWF
Model names	MetUM NEMO	ECEarth NEMO	Arpege NEMO	ECHAM MPIOM	ECHAM FESOM	CCESM NEMO	IFS NEMO
Atmosph. Res., core	60-25km	T255-799	T127-359	T63-255	T63-255	100-25km	T319-799
Atmosph. Res., FCM	10-5km						T1279-2047
Oceanic Res., core	1/4°	1/4°	1/4	0.4-1/4°	1-1/4 spatially variable	1/4	1/4
Oceanic Res., FCM	1/12°	1/12°	1/12°	1/10°	1-1/14° spatially variable	(1/16°)	

Table 1. European GCMs that will be used in PRIMAVERA. A distinction is made between i) **core** and ii) **Frontiers of Climate Modelling (FCM)** integrations (see Theme 1).

Core Integrations and HIRESMIP proposal

- AMIP-style atmosphere only
 - 1950-2050 (SSTs?, aerosol concentrations)
 - Low and high resolutions, ~N216 (60km) and ~N512 (25km)
 - Ensembles ~3
 - 30 year minimum
- Coupled AOIL
 - 1950-2050
 - ~60km-ORCA025 and ~25km-ORCA025 (though couple of groups may use ORCA1 as low resolution)
 - Twin: Fixed 1950's forcing and all forcings (RCP4.5)
 - Ensembles ~3
 - Ocean spinup? Diagnostics? Lots of other questions for discussion
 - Intend to use aerosol concentrations (rather than emissions) to reduce spread between models and better understand processes
- Contacted: Range of groups in US and Japan
- Please contact either: Rein Haarsma rein.haarsma@knmi.nl or malcolm.roberts@metoffice.gov.uk
- <http://www.wcrp-climate.org/index.php/modelling-wgcm-mip-catalogue/modelling-wgcm-mips/429-wgcm-hiresmip>

Frontier integrations

- Frontiers integrations
 - Same as core, 1950-2050
 - Coupled model with $1/10^\circ$ – $1/12^\circ$ ocean, 5 groups
 - MO, IC3, CERFACS with NEMO12,
 - MPI with 1/10 and
 - AWI with FESOM
 - Stochastic physics at low and high resolution

Other proposed projects

- US-CLIVAR successor to Hurricane WG – use tropical cyclone forcing with eddy-resolving ocean model to look at interactions – discussing in San Diego at hurricane conference
- Led by Kevin Walsh